

27 January 1964

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MEMORANDUM FOR: [REDACTED], Development Branch, Plans and Development Staff, NPIC
SUBJECT: Preliminary Study Report, Project No. 1005
REFERENCE: Request for Study, 31 December 1963

PROBLEM STATEMENT:

Request for a laboratory evaluation of the relay lens for the Polaroid attachment used with the [REDACTED] Dyna-Zoom Microscope was received. Since the lens and film combination was really the object in question, verbal exchange with the requester changed the original request to include all aspects of the problem. The problem originated in TID where they were not able to obtain the resolution on the Polaroid material that appeared visually. Since the Polaroid system is to be used on equipment in prospect for NPIC, it was thought vital to find out if indeed the material was deficient.

PRELIMINARY INVESTIGATIONS:

Since the project needed no special equipment or fabricated items, work was started immediately. An object of the type used by TID was procured and observed visually at various magnifications; these were then photographed with the Polaroid attachment. Photographs were also taken with experimental NBS resolution target capable of 1700 lines/mm at some undetermined contrast.

PRELIMINARY RESULTS:

It was found that the photographs of the targets contained the same resolution as that observed visually, taking into account the natural differences arising from viewing a transparency and a print in comparison. It appears that the poor results of the TID study may have happened because of such things as poor target, lack of care in focussing, improper setting-up of the microscope, vibration, or a combination of any of these mitigating circumstances.

The final report will furnish more quantitative results, as well as a detailed description of the experimental methods used. The results and conclusions remain the same, however. There is no loss of information with the Polaroid attachment; results are optimized with care and basic microscope adjustment skills. It is estimated that the final report will be completed by 10 February 1964.

[REDACTED]
Chief, Exploratory Development Laboratory Branch
P&DS, NPIC

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NGA.